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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/540,560	06/24/2005	Toshio Morita	Q73670	6713
23373 7590 06/25/2008 SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			EXAMINER VDAYAKUMAR, KALLAMBELLA M	
			ART UNIT 1793	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/540,560

Applicant(s)

MORITA ET AL.

Examiner

KALLAMBELLA VIJAYAKUMAR

Art Unit

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☒ Claim(s) 2, 11-12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/550)
Paper No(s)/Mail Date 06/24/2005/03/01/2007
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

- This application is a 371 of PCT/JP03/16771 filed 12/25/2003, and claims foreign priority benefits under 35 U.S.C. 119(a)-(d) over JP 2002-376060 filed 12/26/2002. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file. The application also claims the benefit under 35 U.S.C. 120 over US Provisional 60/436631 filed 12/30/2002. Also acknowledge the receipt of English Translation for the US provisional filed 06/24/2005.
- The preliminary amendment filed 06/24/2005 has been entered. Claims 1-23 are currently pending with the application.
- The examiner has considered the IDS filed 06/24/2005 and 03/01/2007 and they include the documents cited by International search report.

Claim Objections

Claims 11-12 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claims 11-12 recite a carbon fiber content of 35-93 mass% and 65-93 mass% respectively that does not further limit the amount of **10-90** mass% in claim-1.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 10 and 22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 10 and 22 contain the trademark/trade name [several carbon blacks claimed with trade Name: Furnace black....Ketjen black] Where a trademark or trade name is used in a claim as a limitation to identify or describe a particular material or product, the claim does not comply with the requirements of 35 U.S.C. 112, second paragraph. See *Ex parte Simpson*, 218 USPQ 1020 (Bd. App. 1982). The claim scope is uncertain, since the trademark or trade name cannot be used properly to identify any particular material or product. A trademark or trade name is used to identify a source of goods and not the goods themselves. Thus, a trademark or trade name does not identify or describe the goods associated with the trademark or trade name. In the present case, the trademark/trade name is used to identify/describe [Carbon black with specific characteristics] and, accordingly, the identification/description is indefinite. Furthermore, the claim appears to include every possible type of carbon black known, so it is not clear how it limits claim 9. Finally, Ketjenblack is a furnace black, so it is already included under the member 'furnace black' so its further enumeration is unnecessary.

Claim Rejections - 35 USC § 102

Claim Rejections - 35 USC § 103

- The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Art Unit: 1793

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

- The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

1. Claims 1, 5-6, 9-10, 13, 15-20 and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by, or in the alternative under 35 USC 103(a) as obvious over Kato et al (JP 06-122785).

A value of "0" in the ranges for graphite and carbon black in claim-1 makes these components optional. Similarly solvent is an optional component in claim-13. Claim scope is not limited by claim language that suggests or makes optional but does not require steps to be performed, or by claim language that does not limit a claim to a particular structure [MPEP 2111.04 [R-3]].

Kato et al teach a conductive coating composition comprising 30-75 wt% resin, and a conductive mixture of VGCF and carbon black (CB) in an amount of 60 wt% or lower (Abstract). The diameter of the VGCF was in the range of 0.1-1.0 micron and its length was 10-100 micron (P-0010). The preferred CB were acetylene black and Ketchen black (P-0013) with a particle size of 30-1100 nm (P-0016). The amount of the carbon black was 5-30 wt% in the conductive composition (P-0018). The coating composition was made by mixing the components in a 3-roll mill (P-0032). A specific example contained 85-pbw phenolic resin, 15-pbw butyral resin and 100-pbw butyl carbitol mixed with 25-pbw CF-1 fiber and 10-pbw ketchen black. The composition was printed over a polyester sheet and cured to form a board (circuit board) (P 0035, 0038-0039, 0041 and Fig-1, Curve-3). The example-3 in Table-1 uses a CF with a diameter of 0.4 micron and a length of 15 micron. The coating composition contained 10.8 wt% CF and 4.3 wt% CB in the coating solution, and 18.5 wt% CF and 7.4 wt% CB in the coated film (@ 25 wt% CF and 10 wt% CB in the conductive charge). The wt% ratio between CF and CB at the same amounts will be 71.4 and 28.6 respectively. The ranges for the VGCF dimensions, and the conductive components and their ratios in the given examples anticipates their ratios in instant claims, because "[W]hen, as by a recitation of ranges or otherwise, a claim covers several compositions, the claim is anticipated' if one of them is in the prior art." *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985). The composition has high adhesivity to the substrate (Abstract). The prior art VGCF is either same or substantially same and will have the instant claimed characteristics. All the limitations of the instant claims are met.

The reference is anticipatory.

In the alternative that the disclosure by Kato et al be insufficient to anticipate the instant claims, the instant claimed composition nonetheless would have been obvious to a person of ordinary skilled in the art over the disclosure because the reference teaches each of the claimed ingredients and in same ratios, and a method of making it, and further it has the same common utility as conductive adhesive (instant claim-18). The burden is upon the applicant to prove otherwise. In re Fitzgerald, 619 F.2d 67, 205 USPQ594 (CCPA 1980).

2. Claims 2-4 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kato et al (JP 06-122785) in view of Nishimura et al (US 6,489,026).

The disclosure on the coating composition by Kato et al as set forth in rejection-1 under 35 USC 102(b)/103(a) is herein incorporated.

The prior art fails to teach a coating composition containing B-doped and structured VGCF per the claims 2-4, and the ratio of VGCF per claim-12.

In the analogous art, Nishimura et al teach boron doped VGCF with a diameter of 0.5 micron or less, and a length of 5-30 micron, and with a boron content of 1.03 wt% (Cl-12, Ln 8-10, 27-30; Cl-13, Tbl-1, Ex-1), that provided improved conductivity in a composite containing graphite and PVDF (Cl-16, Tbl-3). The prior art teaches the VGCF to contain hollow filaments that are branched (Cl-7, Ln 35-40). The formation of nodular structures at the portions of branching junctions would be obvious. Nishimura et al further disclose that the inventive carbon fibers could be used as a filler in resins to improve electrical conductivity (Cl-1, Ln 16-18).

It would have been obvious to a person of ordinary skilled in the art substitute the VGCF in the composition of Kato with B-doped VGCF of Nishimura et al as functional equivalent with predictable results and reasonable expectation of success because Nishimura et al teach that it could be used with polymers to improve conductivity, and Kato is in the analogous art of conductive coatings containing VGCF and a polymer with a desire to improve conductivity (Figure-1).

With regard to claim-12, the prior art teaches a conductive composition comprising a mixture of VGCF and CB in an amount of 60 wt% or less, and a CB content of 5-30 wt%. At a maximum content of 60wt% for the conductive filler mixture, containing 5 wt% CB at its low end of the range, the amount of VGCF in the composition will be 55 wt% which lies close to the low end of 65mass% in instant claim-12, and Similarly, a prima facie case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985) (Court held as proper a rejection of a claim directed to an alloy of "having 0.8% nickel, 0.3% molybdenum,

Art Unit: 1793

up to 0.1% iron, balance titanium" as obvious over a reference disclosing alloys of 0.75% nickel, 0.25% molybdenum, balance titanium and 0.94% nickel, 0.31% molybdenum, balance titanium.).

3. Claims 8 and 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kato et al (JP 06-122785) in view of Nishimura et al (US 6,489,026) and Masuko et al (US 2002/0051903).

The disclosure on the coating composition by Kato et al as set forth in rejection-1 under 35 USC 102(b)/103(a) and in rejection-2 under 35 USC 103(a) are herein incorporated.

The prior art fails to teach a composition containing boron doped carbon black per the claims.

In the analogous art, Masuko et al teach the composition, structure, and making of boron doped structured carbon blacks and their use with VGCF in polymer electrolytes and electrodes (Abstract).

It would have been obvious to a person of ordinary skilled in the art to substitute the carbon black in the combined prior art teachings of Kato and Nishimura with the CB of Masuko et al as functional equivalent with reasonable expectation of success because the teachings of Nishimura and Masuko are in the analogous art of electrodes, and Nishimura et al teach that that the conductive fillers could be used in polymer matrix, and prior art compositions have a common species of VGCF as a conductive filler.

4. Claims 1-7, 11, 13 and 15 are rejected under 35 U.S.C. 103(a) as being obvious over Iino et al (US 6,627,689).

Iino et al teach the composition of an electroconductive curable resin comprising: A). Boron-doped Graphite powder with a particle size of 8-50 micron and a boron content of 0.05-5 wt%, (B). Curable resin and (C). VGCF with a diameter of 0.1-0.5 micron and a length of 10-20 micron (Cl-2, Ln 52-65; Cl-12, Ln 9-15, 19-21; Cl-11, Ln 6-10). The component ratio between A and B and C is 20-99.8 (A or A+C) to 80-0.1 (B) wherein A+B+C=100 (Cl-2, Ln 52-65; Cl-3; Ln 1-4). The ratio between A and C is 60-99 to 40-0.1 such that A+C=100 (Cl-3, Ln 5-10; Cl-13, Ln 9-16).

The prior art fails to teach the specific range for the characteristics for the carbon fiber and the conductive fillers per claims 1-2 and 11.

Art Unit: 1793

However, the dimensions of prior art VGCF lie inside the instant claimed ranges for the dimensions. Further, the calculated individual ratios of A and C: $A+C=99.8$ (upper end of the range), the fraction of Graphite will be 59.9 wt% (60% fraction -A) and 39.9% VGCF (40% Fraction-C) which lie inside the claimed ranges in claims 1 and 11, and In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); In re Woodruff, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990).

With regard to claim 2, the prior art teaches treating VGCF in presence of a Boron catalyst and presence a small amount of Boron in the VGCF would be obvious which will lie close to the low end region of 0.01 mass %, Similarly, a prima facie case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. Titanium Metals Corp. of America v. Banner, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985) (Court held as proper a rejection of a claim directed to an alloy of "having 0.8% nickel, 0.3% molybdenum, up to 0.1% iron, balance titanium" as obvious over a reference disclosing alloys of 0.75% nickel, 0.25% molybdenum, balance titanium and 0.94% nickel, 0.31% molybdenum, balance titanium.). Further the calculated VGCF content lies within the instant claimed range and prima facie obvious over instant claims. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); In re Woodruff, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990).

With regard to claims 3-4, the prior art VGCF is similar to that that claimed by the applicants (specification pgs 10-11) wherein in it is processed presence of boron, and similar compositions are expected to possess similar properties. In re Spada, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

With regard to claim-5, the prior art particle size lies inside the instant claimed range and prima facie obvious over instant claims. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); In re Woodruff, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990).

With regard to claims 6-7, the prior art teaches boron-doped graphite.

With regard to claim-13, the prior art teaches a curable composition containing a resin.

Art Unit: 1793

With regard to claim-15, the prior art teaches mixing the components by kneading (CI-15, Ln 29-35).

5. Claims 1, 5, and 13-15 are rejected under 35 U.S.C. 103(a) as being obvious over Wadahara et al (US 6,384,128).

Wadahara et al teach a conductive molding composition for conductive products such as housings and cases for electronic equipment comprising: A). Conductive fiber, B). A carbon powder, C). A thermoplastic Resin (Abstract). The conductive fiber (A) comprised VGCF with a diameter of 0.01- 1 micron and aspect ratio of 5-1000 (CI-5, Ln 32-47). The carbon powder (B) comprised acetylene black, channel-black or lamp black or the like either singly or in a mixture (CI-9, Ln 3-13). The composition further contained conductive additives such as graphite powder (O) (CI-22, Ln 49-50; CI-23, Ln 51-54). The component ratios of A and B were 2-50 wt% and 0.5-20 wt% respectively relative to the thermoplastic composition (CI-24, Ln 28-33). The amount of O was 0.01-15 wt% (CI-23, Ln 56-60).

The prior art fails to teach the instant claimed composition with the specific ranges for VGCF and a composition containing the specific components.

However, the instant claimed composition would have been obvious to a person of ordinary skilled in the art over the prior art teachings because the prior art teaches composition containing same components and in same ratios and has same utility as conductive compositions (Spec: Pg-1, Ln 14-20; Pg-38:Industrial Applicability) and prima facie obvious for the instant claimed composition. Further, the prior art ranges for the VGCF dimensions, and the individual component ratios overlap with the instant claimed ranges and prima facie obvious over instant claims. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); In re Woodruff, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). This further meets the limitation of claim-14.

With regard to claim-5, the specific carbon blacks taught by the prior art obviously meet that particle size range limitation.

With regard to claim-15, the prior art teaches kneading the components (CI-25, Ln 32-43).

Art Unit: 1793

6. Claims 6-7 and 11 are rejected under 35 U.S.C. 103(a) as being obvious over Wadahara et al (US 6,384,128) in view of Iino et al (US 6,627,689).

The disclosure on the coating composition by Wadahara et al as set forth in rejection-5 under 35 USC 103(a) is herein incorporated.

The prior art fails to teach a composition containing boron-doped graphite the claims.

In the analogous art, Iino et al teach electroconductive curable compositions that can be molded comprising a resin combined with VGCF and boron doped graphite with improved conductivity (Abstract; Cl-2, Ln 52- Cl-4, Ln 23).

It would have been obvious to a person of ordinary skill in the art to substitute the graphite in the molding composition of Wadahara with the boron-doped graphite of Iino et al as functional equivalent with predictable results and reasonable expectation of success because they have a common utility as compositions for molding electronic and electrical products, and automotive parts (Wadahara- Cl-36, Ln 25-30; Iino: Cl-27, Ln 50-60).

7. Claims 6, 8, 12, and 21-22 are rejected under 35 U.S.C. 103(a) as being obvious over Wadahara et al (US 6,384,128) in view of Iino et al (US 2005/0112441).

The disclosure on the coating composition by Wadahara et al as set forth in rejection-5 under 35 USC 103(a) is herein incorporated.

The prior art fails to teach a composition containing boron-doped carbon black per the claims.

In the analogous art, Iino et al teach electroconductive curable compositions that are moldable comprising resin combined with VGCF and boron doped carbon black with improved conductivity (Abstract; 0020-0022, 0025-00027, 0041, 0123-0128).

It would have been obvious to a person of ordinary skill in the art to substitute the carbon black in the molding composition of Wadahara with the boron-doped carbon black of Iino et al as functional equivalent with predictable results and reasonable expectation of success because they have a common utility as compositions for molding electronic and electrical products, and automotive parts (Wadahara- Cl-36, Ln 25-30; Iino: 0179).

8. Claims 1-5, 9-10, 13, and 15-16 rejected under 35 U.S.C. 102(e) as being anticipated by Morita et al (US 7,122,132).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Morita et al teach the composition of a conductive transparent film comprising 0.25 pbw VGCF with an OD of 0.04 micron and an aspect ratio of 40, and 0.25 pbw Ketjen Black-E and 4.5 pbw polyester resin (CI-17, Ex-6). The VGCF included B-doped materials with a boron content of 0.01-5 mass%, OD of 0.05-0.5 micron and an aspect ratio of 10-25,000 (CI-18, Claims 1-6). The wt ratio between VGCF and Ketjen Black of 1:1 in the example-6 meets the ratio limitation in Claims-1 and 2. All the limitations of the instant claims are met.

The reference is anticipatory.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KALLAMBELLA VIJAYAKUMAR whose telephone number is (571)272-1324. The examiner can normally be reached on M-F 07-3.30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on 5712721358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1793

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/KMV/.

June 19, 2008.

/Stuart Hendrickson/
Primary Examiner, Art Unit 1793